

Interagency Technology Deployment Working Group

L Prize® Competition Winner 60W Incandescent Replacement Lamp Update

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L Prize Competition

D&R International

March 15, 2012

TECHNOLOGY

Light-emitting diodes (LEDs) produce light with electrons, which shed light waves as they travel across a semi-conducting chip. LED bulbs produce less heat than incandescents and don't contain hazardous mercury as fluorescents do.

ENERGY USAGE

The bulb uses 10 watts to produce as much or more light than a 60-watt incandescent bulb, or one-sixth the energy.

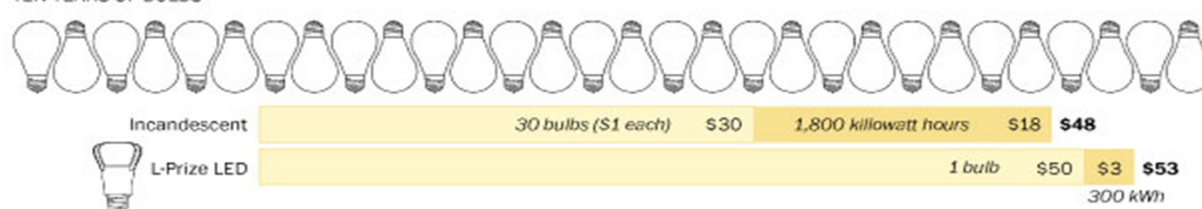
ASSEMBLY VS. MANUFACTURE

The contest originally required the winner to be made in the United States, but rules were relaxed to require U.S. assembly only. Philips says the chips are made in California and the bulbs are assembled in Wisconsin.

COST

The lifespan of the L-Prize bulb and the electricity it uses mitigate the initial cost. In addition, power companies including Pepco and Dominion Power are considering rebates for customers who buy LED bulbs.

TEN YEARS OF BULBS



DURABILITY

In lab tests, the L-Prize bulb withstood heat, cold, humidity and vibration better than its fluorescent counterparts. (However, no mention was made of a real-world test involving accidentally letting one roll off a kitchen countertop.)

LIGHT QUALITY

Color was deemed warm and true in test settings. Most of the light emitted by LEDs is visible compared with 10 percent from an incandescent bulb.

BULB LIFE

This bulb is expected to last up to 30,000 hours — 30 times the lifespan of an incandescent bulb. That means if you use it for eight hours a day, it may last 10 years or more. LED bulbs don't burn out but wane over time.

Cost of electricity
1 cent per
kilowatt-hour

The Washington Post, March 8, 2012
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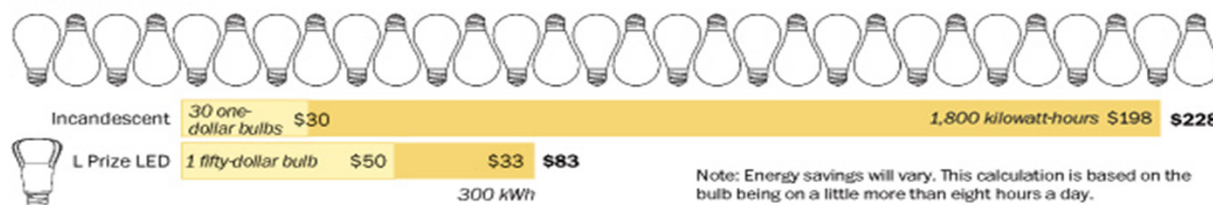
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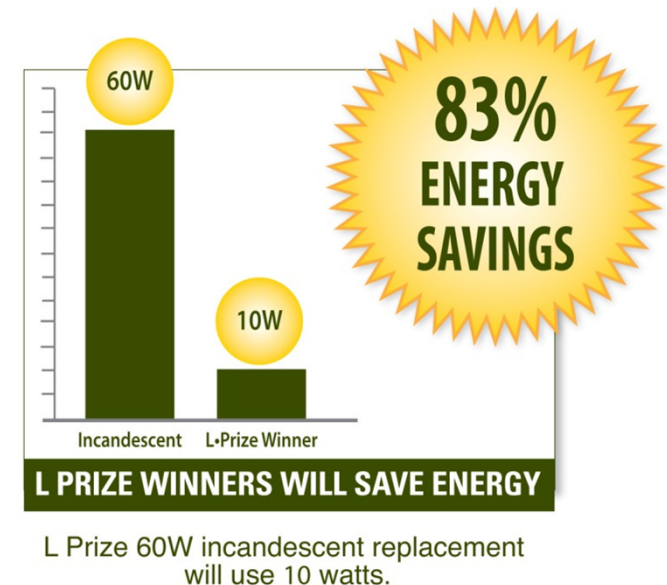
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Cost of electricity
11 cents per
kilowatt-hour

The Washington Post, March 9, 2012
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What Is the L Prize?

- Technology competition to spur innovation and exceptional performance
- Created by Energy Independence and Security Act (EISA 2007) Sec. 655
- Two key lamp replacements: 60W Incandescent and PAR 38 Halogen
- Future focus: 21st Century Lamp
- Cash prizes, federal purchasing, utility programs



Philips Wins First L Prize

- August 3, 2011: Philips announced as winner of 60W replacement bulb category
- Product arriving in stores in 2012



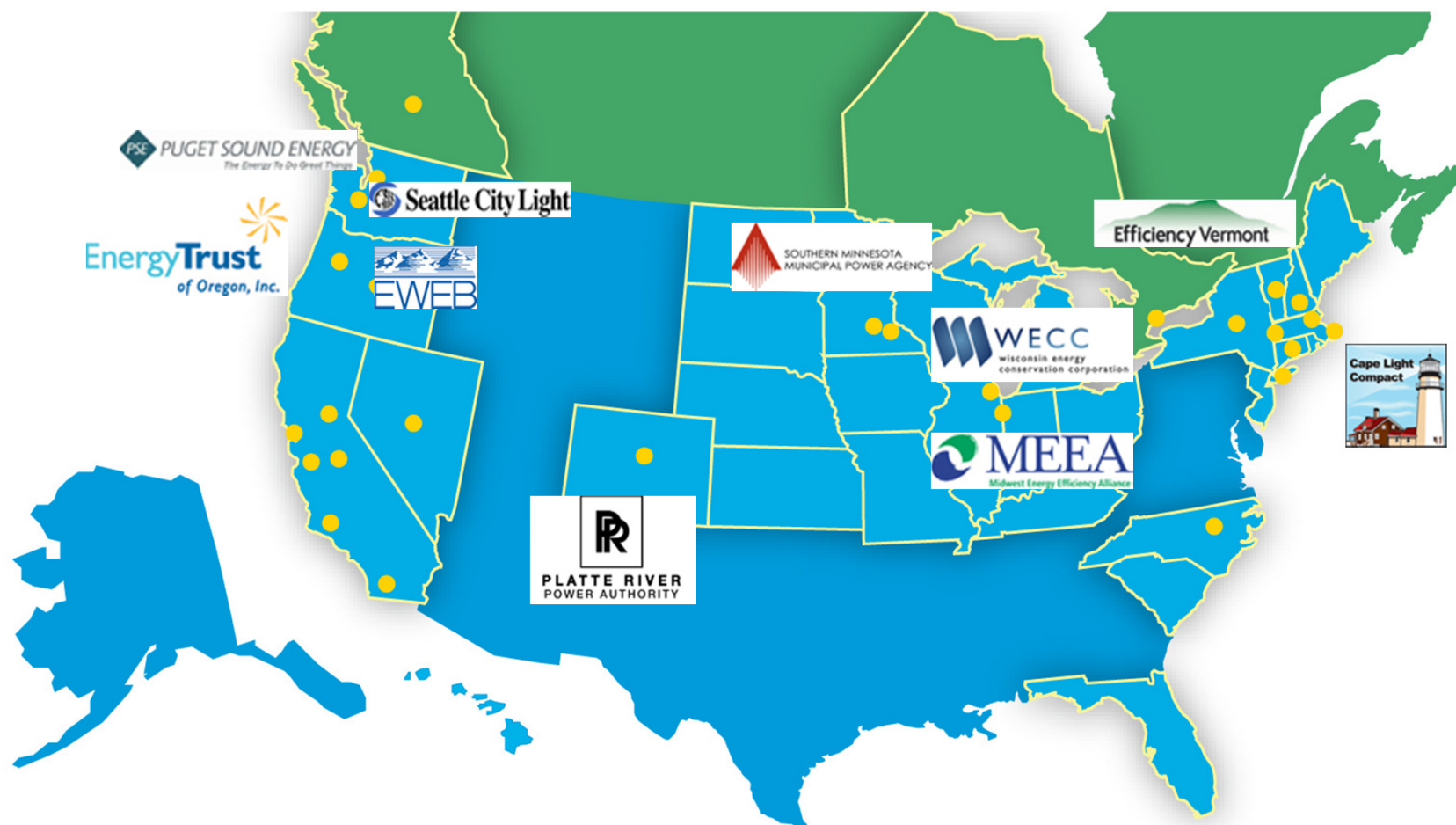
“...[O]nce an award is made the authorizing Act directs General Services Administration to develop federal purchasing schedules for solid-state lamps that meet or exceed the specifications laid out in the prize category—so long as it is cost effective. I hope the GSA begins this process soon.”

--Senator Jeff Bingaman, D-NM

Requirements for 60W Replacements

	ENERGY STAR Integral LED Lamps, v 1.4	L Prize
Light output	800 lumens	900 lumens
Efficacy	50 lm/W for <10W 55 lm/W for ≥10W	90 lm/W
CRI	80	90
CCT	2700K, 3000K, 3500K, 4000K; tolerance .006	2700K or 3000K; tolerance .004
Life/lumen maintenance	70% at 25,000 hours - 10 samples - 6000 hours - 45°C	70% at 25,000 hours - 200 samples - Max + 5000 hours - 45°C
Intensity distribution	Uniform in 0°–135° zone	Uniform in 0°–150° zone

L Prize Partner Plans



Significant Savings Possible in Common Spaces

Example: Hotel Corridor/Common Space—Downlight

Corridor	Current Lamp	L Prize Winning LED Lamp	Notes
Wattage	67 (Incand)	10	57W savings = 85%
x Annual Operating Hours	8,760	8,760	24 hrs/day
x No. of Lamps	55	55	
÷1,000	32,281	4,818	kWh Consumption
x kWh (\$0.1014)	\$3,273	\$488	\$2,784 Savings/Year
Lamp Cost	\$27.50	\$2,750	
Payback (yrs)		0.98	
Common Space	Current Lamp	L Prize Winning LED Lamp	Notes
Wattage	32 (CFL)	10	22W savings = 69%
x Annual Operating Hours	8,760	8,760	24 hrs/day
x No. of Lamps	31	31	
÷1,000	8,690	2,716	kWh Consumption
x kWh (\$0.1014)	\$881	\$275	\$605 Savings/Year
Lamp Cost	\$155	\$1,550	
Payback (yrs)		2.30	

Energy savings is not the only consideration Retail—Merchandise Mart (Chicago)



Image courtesy of Philips

Where Can I Purchase the L Prize Winner?

- Various commercial distributors will sell the winning product
 - Grainger will have the product as of March 26, 2012—
Part #16A335 (L Prize)
 - Government site:
www.grainger.com/Grainger/static/rc_industrysegments.html
 - Federal Government site:
www.grainger.com/Grainger/static/rc_fedgov.html
- GSA schedule: Contract #GS-06F-0007J
- WESCO, SupplyForce.com, Defense Logistics Agency:
details to come

For more information

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